

Date: Friday, 26/09/2008 10:58:45 AM
 User: Julie Lecocq

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : 206L FWD X-TUBE
Job Number : 42302	
Estimate Number : 13220	
P.O. Number :	Part Number : D206667103TRN
This Issue : 26/09/2008 S.O. No. :	Drawing Number : D206-667-143 REVB
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : CROSSTUBES	Drawing Revision : B
Previous Run : 42301	Material :
Written By :	Due Date : 03/10/2008 Qty: 1 Um: Each
Checked & Approved By : <u>JUL 08.9.26</u>	
Comment : Est Rev:A 08-03-06 new issue DD verified by:ec Est Rev B 08.04.02 removed polish EC verified by DD	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6002115	Crosstube Material
-----	----------	--------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6002-115 Crosstube

Check OD = 2.250"; ID = 1.750"

B34684

a.m

08.10.01 (1)

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------

**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA087

2-Turn first side as per Folio FA087

3-File down transition lines smooth.

a.m

08.10.01 (1)

3.0	QC1	INSPECT ALL DIM TO DIM SHEET
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**Comment:** INSPECT ALL DIM TO DIM SHEET

a.m 08.10.01 (1)

4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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**Comment:** MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA087

2-File down transition lines smooth.

3-Remove sand and plugs

a.m

08.10.01 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 26/09/2008 10:58:45 AM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L FWD X-TUBE

Job Number: 42302

Part Number: D206667103TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

A.M. 08.10.01 @

6.0

QC8

SECOND CHECK



AWM 8-10-2



Comment: SECOND CHECK

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



AWM 8-10-2



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

A.M. 08.10.02 @

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock in kanban rack

Location: X-TUBE CELL

AWM 8-10-2

10.0

QC21

FINAL INSPECTION/W/O RELEASE



08/10/03 J

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



U 08.10.02

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 42302
Description: Crosstube Assembly (206L High Fwd)		Part Number: D206-667-143
Inspection Dwg: D206-667-143 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.245	/			
	1.982	+0.005/-0.000	1.987	/			
	2.019	+0.005/-0.000	2.024	/			
	2.058	+0.005/-0.000	2.063	/			
	2.097	+0.005/-0.000	2.103	/			
	2.136	+0.005/-0.000	2.141	/			
	2.176	+0.005/-0.000	2.181	/			
	2.201	+0.005/-0.000	2.206	/			
	0.125	+/-0.010	0.125	/			
	0.400 x 30°	+/-0.010	0.400x30°	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.438	/			
SIDE B	104.98	+/-0.020	104.980	/			
	2.240	+0.005/-0.000	2.245	/			
	1.982	+0.005/-0.000	1.987	/			
	2.019	+0.005/-0.000	2.024	/			
	2.058	+0.005/-0.000	2.063	/			
	2.097	+0.005/-0.000	2.103	/			
	2.136	+0.005/-0.000	2.141	/			
	2.176	+0.005/-0.000	2.181	/			
	2.201	+0.005/-0.000	2.206	/			
	0.125	+/-0.010	0.125	/			
	0.400 x 30°	+/-0.010	0.400x30°	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.438	/			

Measured by: A.M.	Audited by: AWM	Prototype Approval:	N/A
Date: 08.10.01	Date: 7-10-02	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.05.06	New Issue (P/O D206-667-103)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED HDS	APPROVED HDS	DRAWING NO. D206-667-143	REV. B SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (206L HIGH FWD) NTS	
A	00.11.17	NEW ISSUE	
B	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

RELEASED
05-07-26

PH 08-09-26
UNDER REVIEW
05-08-10 PH
re-draw detail F

Qty	Part Number	Description
X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
1	D6002-115	CROSSTUBE
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
2	D2856-400-694	ABRASION STRIP
2	D2891-1	SUPPORT
14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
4	MS21920-20	CLAMP

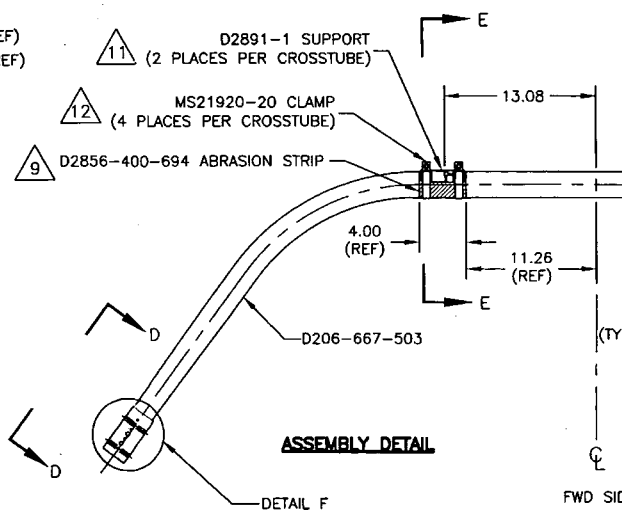
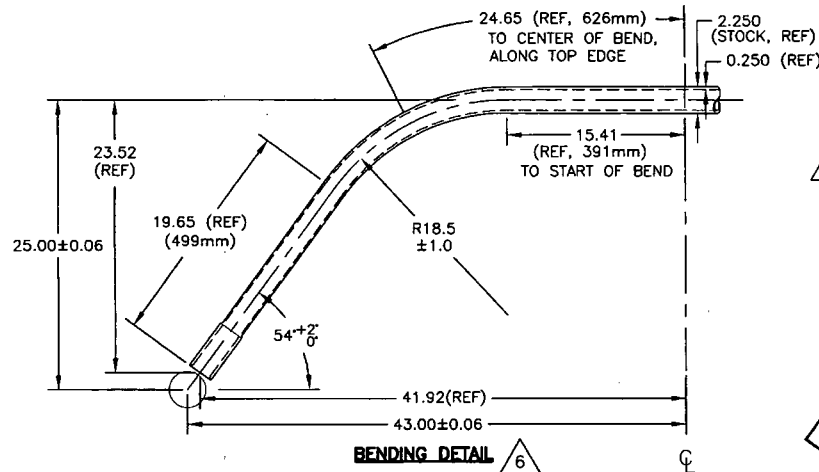
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98 ± 0.020 .
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) IT IS OPTIONAL TO SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

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B $\phi 0.323^{+0.005}_{-0.000}$
(TYP 5 PLACES PER CUFF)
HOLE TO BE ALIGNED WITHIN ± 0.001
OF HOLE ON OTHER SIDE OF CUFF

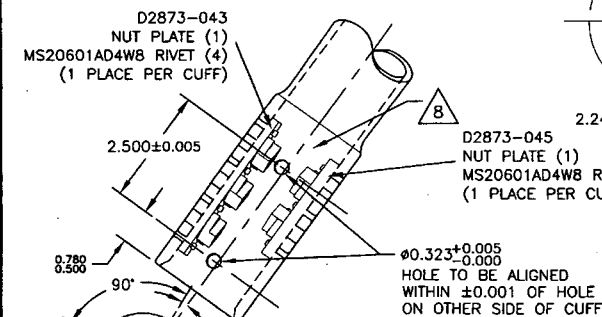
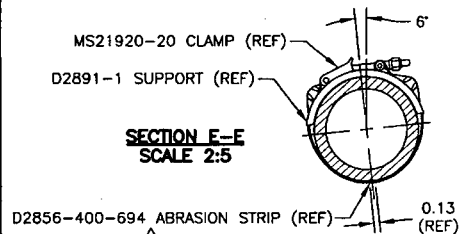
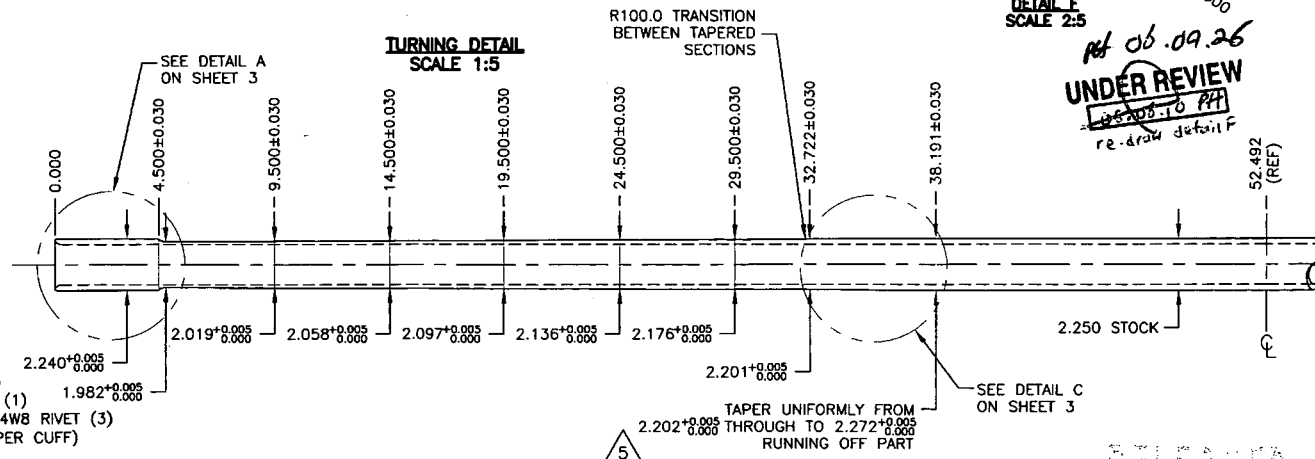
PILOT $\phi 0.128$
C'SINK $\phi 0.225 \times 100'$
(TYP 7 PLACES PER CUFF)

FWD SIDE ONLY

DETAIL F
SCALE 2:5

06.09.26
UNDER REVIEW
05.08.16 PH
re-draw detail F

TURNING DETAIL
SCALE 1:5



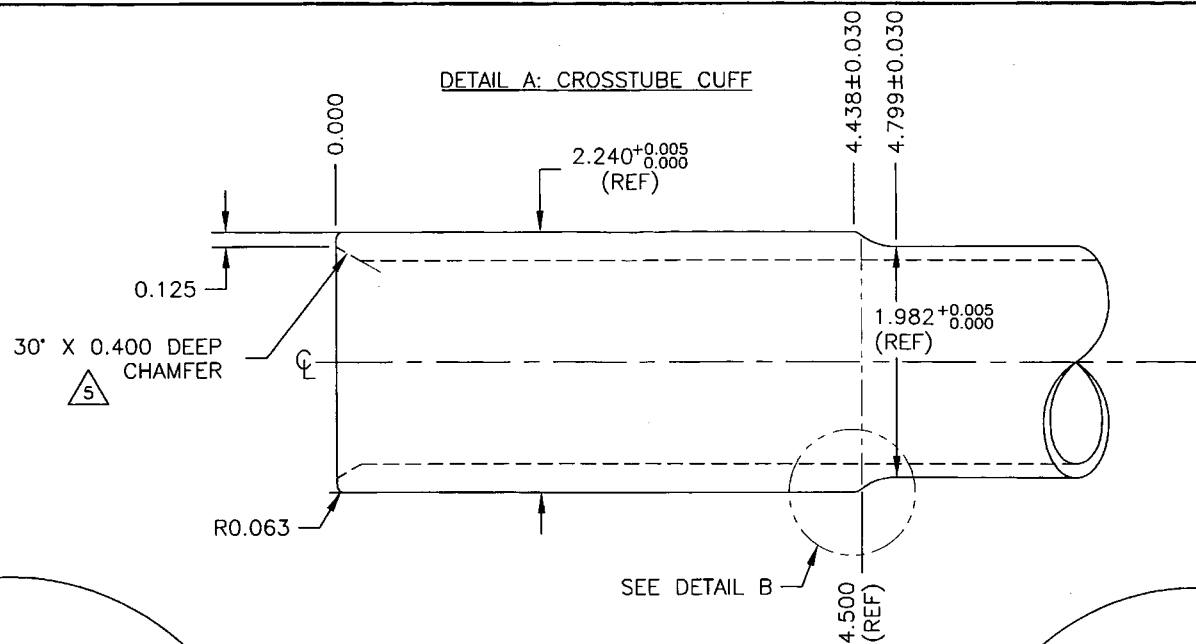
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DESIGN	DRAWN BY	DART DART AEROSPACE LTD. WARRIMUR, ONTARIO, CANADA	
PH	PH	DRAWING NO.	REV. B
CHECKED HDS	APPROVED HDS	D206-667-143	SHEET 2 OF 3
DATE		TITLE	SCALE
05.07.26		CROSSTUBE ASS'Y (206L HIGH FWD)	1:10

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DETAIL A: CROSSTUBE CUFF



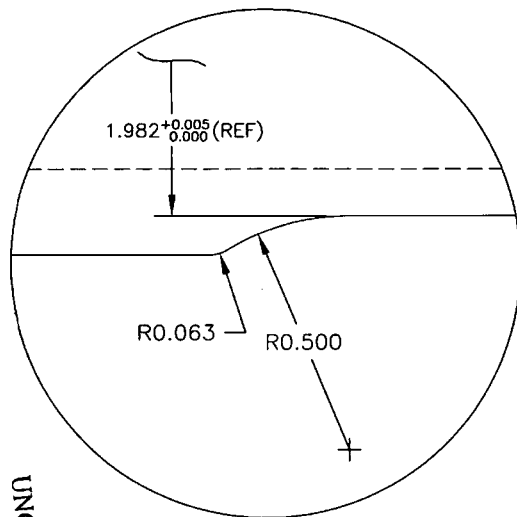
05-07-26 #

UNDER REVIEW

06.08.10 PH

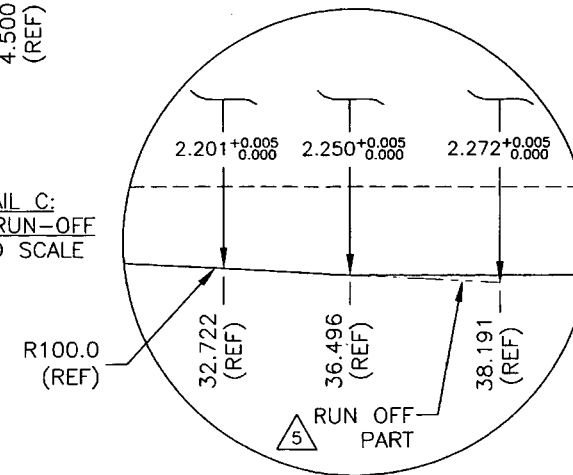
re-draw detail F

Ref 07.09.26



DETAIL B: CUFF
TRANSITION
SCALE 4:1

DETAIL C:
TAPER RUN-OFF
NOT TO SCALE



NO. 21330

WORK ORDER

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DESIGN	PH	DRAWN BY	PH	DART	DART AEROSPACE LTD.
CHECKED	PH	APPROVED	PH		HAWKESBURY, ONTARIO, CANADA
DATE	05.07.26	DRAWING NO.	D206-667-143	REV. B	SHEET 3 OF 3
TITLE	CROSSTUBE ASS'Y (206L HIGH FWD)	SCALE	1:1		